

Fire Weather Organizational Directory 2002

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Wilmington Oh. 45177

Meteorologist -in- Charge
Kenneth Haydu
Fire Weather Program Leader
John Franks - John.Franks@noaa.gov

Telephone Numbers and Internet Access

Note: These are unlisted numbers and are not to be given to the general public:

WSFO Louisville
Fire Weather Forecaster
1-502-???-????
1-502-968-5663 (Fax)

Internet Access:
[Http://www.crh.noaa.gov/lmk/forecast/firewx.html](http://www.crh.noaa.gov/lmk/forecast/firewx.html)

WSFO Paducah
Fire Weather Forecaster
1-800-???-????
1-270-744-3828 (Fax)

Internet Access:
[Http://www.crh.noaa.gov/pah/forecast/firewx.html](http://www.crh.noaa.gov/pah/forecast/firewx.html)

WSFO Jackson
Fire Weather Forecaster
1-606-???-????
1-606-666 (Fax)

Internet Access:
<http://www.crh.noaa.gov/jkl/forecast/firewx.html>

WSFO Wilmington Oh.
Fire Weather Forecaster
1-937-???-????
1-937-383-0033 (Fax)

Internet Access:
<http://www.nws.noaa.gov/er/iln/fireweather.htm>

INTRODUCTION

The National Weather Service's Fire Weather Program is designed to provide forecast, warning, and consultation services for the prevention, suppression, and management of forest and rangeland fires and for a host of land management activities. These meteorological services are built to meet the weather requirements of federal and state wild land managers.

The program is customer-oriented and is not limited to just wild fire management, but also includes all forest and range management weather support (such as prescribed burns and spot forecasts). Weather support is available throughout the year and not just during the normal fire season.

This Operations Plan will cover how weather services can be requested, how they will be provided and how compensation will be rendered if need be.

This plan will be reviewed annually by all parties. Any changes will be coordinated with all parties involved before the changes are incorporated.

NEW FOR 2002

The criteria for a Fire Weather Watch and a Red Flag Warning have been changed. See Red Flag Forecasts.

The extended forecast on the narrative fire weather product has been expanded from 5 to 7 days.

Narrative fire weather forecasts are now issued every day, year round.

FIRE SEASON

The normal fire season will be separated into two periods. The Spring season will run from February 15 through April 30. The fall fire season will begin October 1 and end December 15. These dates may be changed depending on the severity of the fire season.

ISSUANCE TIME OF NORMAL FORECASTS

The narrative forecast will be issued by 9:00 AM Eastern time, seven days a week. The point forecasts will be issued between 2:45 and 3:00 PM ET.

RED FLAG FORECASTS

Specific conditions must be met for a Fire Weather Watch and/or a Red Flag Warning to be issued. These conditions are as follows. **Ten hour fuels must be 8% or less. Afternoon relative humidity levels are expected to fall to 25% or lower AND 20 foot winds are expected to exceed 15 mph. New for this year both low RH values and winds must be met before a Watch or Warning will be issued.**

Meteorologists should be notified if the moisture in the ten hour fuels is expected to drop to 8% or less. If the forecast office issues a Fire Weather Watch or Red Flag Warning for a specific forest or national park, the fire weather forecaster will highlight the narrative forecast with the watch or warning.

A "**Fire Weather Watch**" is used to alert the user to the possible development of a Red Flag event in the near future. This could be up to 72 hours in advance.

A "**Red Flag Warning**" will be issued to warn the user of an impending or ongoing Red Flag event. A Red Flag Warning will be issued immediately when Red Flag Conditions are occurring. Otherwise, it will be issued for impending Red Flag Conditions when there is a high degree of confidence that conditions will develop and the forecast time of onset for the event is less than four hours.

Because of the restrictions on user programs brought about by a Red Flag Warning, it is imperative that the warning be promptly canceled when the conditions cease to exist or if the conditions are no longer expected to develop.

CONTENT OF NARRATIVE FIRE WEATHER FORECAST

A headline may be added to the top of the forecast, denoting significant weather, or for the issuance of a Red Flag Warning or Fire Weather Watch. The synopsis will briefly cover locations of fronts and systems which produce the weather. The 36 to 48 hour forecast will cover specific weather elements mentioned below. The extended three to seven-day forecast is a general forecast which mentions the possibility of precipitation and high and low temperatures for each day. See attachment 2 for an example.

Elements of the narrative are described below.

1. SKY COVER

- A. Clear (or Sunny) -- < 1/8th cloud cover.
- B. Mostly Clear/Mostly Sunny -- 1/8th to 2/8ths of cloud

- cover.
- C. Partly Cloudy/Partly Sunny-- $\frac{3}{8}$ ths to $\frac{5}{8}$ ths of cloud cover.
 - D. Mostly Cloudy -- $\frac{6}{8}$ ths to $\frac{7}{8}$ ths cloud cover.
 - E. Cloudy -- $\frac{8}{8}$ ths cloud cover.
 - F. Increasing Cloudiness -- the clouds are increasing in amount (this also implies thickening of clouds).
 - G. Decreasing Cloudiness-- A progressive decrease in the amount of sky covered with clouds.
 - H. Variable Cloudiness-- A constant variation in the amount of clouds covering the sky with respect to time and space.

2. **PRECIPITATION TYPE**

- A. Rain--General, not showery, usually in a stable atmosphere. Small to medium sized water droplets.
- B. Drizzle-- General precipitation in a stable atmosphere. Very small water droplets that appear to float in the atmosphere.
- C. Freezing Rain/Drizzle-- Liquid precipitation that freezes upon impact with the ground or vegetation.
- D. Sleet--Precipitation that falls in the form of frozen rain or partially frozen rain.
- E. Snow--Frozen precipitation of relatively long duration, general or patchy, not showery.
- F. Snow Flurries-- Light snowfall of short duration with some clearing between occurrences. Accumulation is slight.
- G. Showers-- Rain/snowfall of short duration and varying intensity, usually beginning and ending abruptly.
- H. Thundershowers-- Same as a shower but accompanied by thunder.
- I. Thunderstorms-- Downpour of rain, often with strong gusty winds and small hail.
- J. Severe Thunderstorm-- Heavy downpours of rain, accompanied by wind gusts to 50 Knots (58 mph) or greater and/or hailstones of $\frac{3}{4}$ inch or larger.

3. **TEMPERATURE**

The temperature will be in degrees Fahrenheit. The maximum and minimum temperatures are forecast for the 30-hour period from 1:00 P.M. the day of the forecast until 7:00P.M. the next day.

4. **RELATIVE HUMIDITY**

The Relative Humidity (R.H.) is the ratio, in percent, of the amount of moisture in the air compared to the amount the air could hold if fully saturated (100%). The range of R.H. is from 0% to 100%. Usually, the minimum R.H. occurs at the time of the maximum temperature and the maximum R.H. occurs at the time of the minimum temperature.

5. **WIND - DIRECTION AND SPEED**

The wind direction applies to the direction from which the wind will blow. The direction will be listed using the 16 point compass (e.g., northeast 8, south 6 etc.). Any significant changes expected during the forecast period will be mentioned in the narrative.

The wind speed will be in miles per hour (mph). The speed is the forecast for the 20-foot level. Speeds pertain to the two minute averages while gusts pertain to the maximum instantaneous value expected.

6. **Wind Shift**

If a shift in wind direction associated with a frontal passage is expected during the period, the new direction and wind speed will be forecast. Because a front may take several hours to move through a zone, the approximate time of the wind shift will be encoded (i.e. Northeast 10 to 15 mph after midnight).

7. **POPS and Type**

The probability of precipitation, or POP, expresses the chance that measurable rainfall will occur at any given point within a county zone group. Measurable rainfall is 0.01 inches or greater. Probability is expressed in percent. A forecast of the predominate type of precipitation will accompany a probability of precipitation forecast (**i.e. 40 percent chance of showers, 60 percent chance of rain, 90 percent chance of light snow**).

8. **Afternoon Mixing Height**

Mixing height is the extent or depth to which smoke will be dispersed by means of turbulence and diffusion. The forecast of mixing height is expressed in feet above ground level (AGL).

9. **Transport Wind**

Transport wind is the average wind speed in meters/second in the mixing depth above the surface. These winds are good indications of the horizontal dispersion of suspended particles. The transport wind is the forecast wind at the time of maximum mixing of the atmosphere, normally during the mid afternoon. Usually a wind of less than 4 meters/second restricts an agency from burning.

INDIVIDUAL STATION FORECASTS

See attachment 1 for location and attachment 3 for an example of NFDRS stations.

The National Fire Danger Rating System (NFDRS) is a quantitative means for evaluating the fire danger across a vast area such as a forest. This complex model of fuel and weather parameters processes daily weather observations and fuel moisture as input, and fire managers receive numeric output that suggest the severity of fire danger over a large area.

Point Forecast Terminology

1. **STATION NAME**

Each location will have a name. This name will be provided by the agency requesting the observation site.

2. **STATION NUMBER**

Before a forecast will be made for a station, it must have a valid station number in WIMS.

3. **VALID DATE**

The valid date will be the next day in the order: YYMMDD

4. **TIME**

The valid time will be 1300 Eastern Time (1:00 P.M.)

5. **State of the Weather**

A single digit number from 0 to 9.

- 0 Clear (Less than 1/10th of sky is cloud covered).
- 1 Scattered Clouds (1/10th to 5/10ths of sky cloud covered).
- 2 Broken Clouds (6/10ths to 9/10ths of sky cloud covered).
- 3 Overcast (More than 9/10ths of sky cloud covered).
- 4 Foggy
- 5 Drizzle
- 6. Rain
- 7 Snow or Sleet
- 8 Showers (In sight or at station and reaching the ground).
- 9 Thunderstorms/Hail

6. **TEMPERATURES**

Temperature forecast for 1:00 P.M. the next day.

7. **RELATIVE HUMIDITY**

Relative Humidity forecast for 1:00 P.M. the next day.

8. LIGHTNING ACTIVITY

A. Period 1 (L1) is from 1 P. M. until midnight that night (a 11-hour period). Period 2 (L2) is from midnight the night of the forecast until midnight the next night (24 hour period.)

B. A single digit (1 through 6) will be used. The meaning of each number is as follows:

- 1 No thunderstorms
- 2 Few building cumulus with isolated thunderstorms
- 3 Much building cumulus with scattered thunderstorms, light to moderate rain reaches the ground
- 4 Thunderstorms common but do not obscure the sky, moderate rain reaches the ground
- 5 Thunderstorms common and occasionally obscure the sky, moderate to heavy rain reaches the ground
- 6 Same as 3 above but dry, no rain

9. WIND DIRECTION AND SPEED

Wind forecast at 1 P.M. the next day. The wind speed is a 10 minute average at 20 feet above the ground.

10. TEN HOUR TIME LAG FUEL MOISTURE

Since the fire weather meteorologist does not have access to fuel moisture information, an M will be entered for missing.

11. TEMPERATURE

The 24 hour maximum and minimum temperature forecast from 1:00 P.M. the day of the forecast until 1:00 P.M. the next day.

12. RELATIVE HUMIDITY

The 24 hour maximum and minimum Relative Humidity forecast from 1:00 P.M. the day of the forecast until 1:00 P.M. the next day.

13. PRECIPITATION DURATION

The number of hours for which precipitation is forecast. Period 1 is from 1:00 P.M. the day of the forecast until 5:00 A.M. the next day (16 hours). Period 2 runs from 5:00 A.M. the next day until 1:00 P.M. that same day (8 hours).

14. WET FLAG

Wet flag is used to indicate "fuels wet". All indices will be forced to zero if Y=yes is used. NOTE: in most cases a N=no will be used unless there is snow on the ground or the ground is extremely wet.

SPOT FORECASTS

Requests for a spot forecast may be called or faxed to the forecast office. The forecast will be faxed back to the requesting agency. As much lead time as possible should be given to the forecast office. The Spot Weather Forecast Form in attachment 4 will be used by the WFO and then returned by fax to the user.

Spot forecasts may be requested by federal agencies in cases where a prescribed burns are planned or in progress. Spot forecasts may also be issued to non-federal agencies when requested for support of a wildfire. Unless otherwise stated by the requesting agency, the forecast parameters of sky condition, weather, temperature, relative humidity, 20 foot wind, significant/sudden changes in wind speed or direction, along with mixing heights, and transport winds shall be provided.

Site forecast for ongoing wildfires are crucial to fighting fires and personnel safety. Of paramount importance are forecasts of wind velocity and humidity. For an ongoing wildfire, an attempt should be made to provide a current observation at the time a forecast is requested. The observation will aid the forecaster in preparing a more accurate site specific forecast.

METHODS OF COMMUNICATIONS

REGULAR FORECASTS

The narrative forecast and the NFDRS may be found on the INTERNET at the addresses listed on page 2 (Telephone Numbers and Internet Access) or check the Daniel Boone Fire Weather home page at: **www.r8web.com/boonefire**.

NOAA WEATHER RADIO

Kentucky has a statewide NOAA Weather Radio networks. These 24-hour broadcasts provide continuous up-to-date weather information directly from the National Weather Service. Taped weather messages are repeated every three to six minutes, and are routinely revised every few hours as needed. The broadcasts are tailored to the weather needs of the people within the receiving area. These broadcasts can usually be heard as far as 40 miles or more from the antenna site depending on terrain, receiver quality, and other factors.

The quality of the broadcasts may depend greatly upon the quality of the receiver. Receivers vary in cost from less than \$20 to more than \$200. Specially designed receivers sound an alarm activated by the National Weather Service to warn of severe weather, or that an emergency exists. Fire Weather Watches or Red Flag Warnings will not be broadcast on the NOAA Weather Radio.

NOAA weather radio receiver locations are located in attachment #5.

FIRE WEATHER OBSERVATIONS

The user agencies will enter the observations into WIMS as soon as possible after 1:00 P.M. Local Standard Time. A forecast will not be prepared without the ability to look at an observation.

MOBILE UNIT SERVICES

The Advanced Technology Meteorological Unit (ATMU) is composed of two large shipping boxes with a total weight of 201 pounds. When requesting an ATMU a separate MICRO-REMS unit should also be requested.

These units are intended for use by a trained Incident Meteorologist. All costs incurred by the National Weather Service to have an Incident Meteorologist at a fire will be passed to the requesting agency. This cost generally runs from \$250 to \$350 a day. These units can be used anywhere in the U.S. The ATMU provides the equipment and supplies for field meteorological operations. The success of these operations depends on the user agency providing a relatively clean and dry working environment as well as a normal electrical power supply. In addition, a static-free telephone line is needed.

Most of these units are stored in the Western U.S. However, two

units are stored in London, Kentucky at the U. S. Forest Service's CACHE site.

Federal agencies desiring the use of the ATMU should request it through their normal regional dispatch channels. Regional headquarters will then normally relay the request back to NIFC at Boise, ID.

State agencies that have a need for the ATMU will request it through the federal agency in their state. If a state asks for the ATMU, all National Weather Service costs will be charged to the Forest Service, who will then charge the state agency.